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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/025,063

12/19/2001

Erik Dahlback

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8326

7590

06/15/2004

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EXAMINER

CHO, UN C

ART UNIT

PAPER NUMBER

2682

6

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,063

Applicant(s)

DAHLBACK ET AL.

Examiner

Un C Cho

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-36 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11,13-20 and 22-29 is/are rejected.
- 7) ☒ Claim(s) 3 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4 and 5</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 3/25/2002 and 11/06/2002 was filed after the mailing date of the Application 10/025,063 on 12/19/2001. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

2. The disclosure is objected to because of the following informalities:

Page 2, line 1 is a repeated sentence of Page 1, line 14.

Page 2, line 17 it recites "Alas", it is not clear what it means.

Page 4, line 14, a period (.) is needed at the end of the sentence.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 2, 4 – 11 and 13 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banik (EP 1134897) in view of Davidsson et al. (US 2002/0101840).

Regarding claim 1, Banik teaches estimating a frequency offset for the remote handset (Banik, Col. 13, lines 39 – 41), determining whether the estimated frequency offset is greater than a predefined threshold (Banik, Col. 13,

lines 42 – 46), determining whether the total timing drift is greater than a predefined threshold (Banik, Col. 9, lines 27 – 31) if the estimated frequency offset is compared to the predefined offset threshold (Banik, Col. 13, lines 42 – 46), and adjusting the frequency of the mobile communication device if the total timing drift is determined to be greater than the predefined drift threshold (Banik, Col. 9, lines 27 - 31). However, Banik fails to teach calculating a total timing drift for the mobile communication device using the estimated frequency error. In contrast, Davidsson teaches that the timing drift compensation is performed based on frequency offset estimation (Davidsson, Paragraph 0026, lines 1 – 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Davidsson to Banik to provide a timing drift compensation technique that can be performed in conjunction with systems utilizing differing techniques (channel estimation or signal compensation technique) and with each technique embodiment, differing frequency offset estimation techniques (preamble directed, decision directed or pilot aided frequency offset estimation) can be utilized.

Regarding claim 2, Banik as modified by Davidsson teaches keeping the frequency of the remote handset the same if the total timing drift is determined to be not greater than the predefined drift threshold (Banik, Col. 8, lines 21 – 30).

Regarding claim 4, Banik as modified by Davidsson teaches adjusting the local oscillator of the remote handset if a value of the total timing drift is

determined to be greater than the predefined drift threshold (Banik, Col. 9, lines 27 – 31).

Regarding claim 5, Banik as modified by Davidsson teaches that changing the frequency of the remote handset is determined after the estimated frequency offset is compared to the predefined offset threshold (Banik, Col. 13, lines 39 – 53).

Regarding claim 6, the claim is interpreted and rejected for the same reason as set forth in claim 5.

Regarding claim 7, the claim is interpreted and rejected for the same reason as set forth in claim 5.

Regarding claim 8, Banik as modified by Davidsson teaches continuously adjusting its local oscillator to achieve frequency alignment (Banik, Col. 7, lines 49 – 51).

Regarding claim 9, the claim is interpreted and rejected for the same reason as set forth in claim 8.

Regarding claim 10, Banik as modified by Davidsson teaches a transceiver unit (Banik, Fig. 1A, 125), a voltage-controlled oscillator (Banik, Fig. 1A, 130) adapted to generate a reference frequency signal for the transceiver unit, and a controller (Banik, Fig. 1A, 105) adapted to control the reference frequency generated by the voltage-controlled oscillator. Banik as modified by Davidsson also teaches estimating a frequency offset for the remote handset (Banik, Col. 13, lines 39 – 41), calculate a total timing drift for the mobile

communication device using the estimated frequency offset (Davidsson, Paragraph 0026, lines 1 – 3), comparing the estimated frequency offset to the threshold (Banik, Col. 13, lines 42 – 46), determining whether the total timing drift is greater than a predefined drift threshold (Banik, Col. 9, lines 27 – 31) if it is determined after the estimated frequency offset is compared to the predefined offset threshold (Banik, Col. 13, lines 42 – 46), and adjusting the frequency of the mobile communication device if the total timing drift is determined to be greater than the predefined drift threshold (Banik, Col. 9, lines 27 - 31).

Regarding claim 11, the claim is interpreted and rejected for the same reason as set forth in claim 2.

Regarding claim 13, the claim is interpreted and rejected for the same reason as set forth in claim 4.

Regarding claim 14, the claim is interpreted and rejected for the same reason as set forth in claim 5.

Regarding claim 15, the claim is interpreted and rejected for the same reason as set forth in claim 6.

Regarding claim 16, the claim is interpreted and rejected for the same reason as set forth in claim 7.

Regarding claim 17, the claim is interpreted and rejected for the same reason as set forth in claim 8.

Regarding claim 18, the claim is interpreted and rejected for the same reason as set forth in claim 9.

Allowable Subject Matter

5. Claims 3 and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. Claims 19 and 28 are allowed.

7. The following is an examiner's statement of reasons for allowance:

Regarding claim 19, Banik (EP 1134897) as modified by Davidsson (US 2002/0101840) teaches estimating a frequency offset for the remote handset (Banik, Col. 13, lines 39 – 41), calculate a total timing drift for the mobile communication device using the estimated frequency offset (Davidsson, Paragraph 0026, lines 1 – 3), comparing the estimated frequency offset to the predefined threshold (Banik, Col. 13, lines 42 – 46), determining whether the total timing drift is greater than a predefined drift threshold (Banik, Col. 9, lines 27 – 31) if it is determined after the estimated frequency offset is compared to the predefined offset threshold (Banik, Col. 13, lines 42 – 46), and adjusting the frequency of the mobile communication device if the total timing drift is determined to be greater than the predefined drift threshold (Banik, Col. 9, lines 27 - 31). However, the prior art either alone or in combination fails to teach estimating a long-term frequency error and a short-term frequency error for the mobile communication device; calculating a total timing drift for the mobile communication device using the long-term frequency error, determining whether a magnitude of the short-term frequency error is greater than a predefined error

threshold and determining whether a magnitude of the total timing drift is greater than a predefined drift threshold if the magnitude of the short-term frequency error is determined to be not greater than the predefined error threshold.

Regarding claim 28, Banik as modified by Davidsson teaches a transceiver unit (Banik, Fig. 1A, 125), a voltage-controlled oscillator (Banik, Fig. 1A, 130) adapted to generate a reference frequency signal for the transceiver unit, and a controller (Banik, Fig. 1A, 105) adapted to control the reference frequency generated by the voltage-controlled oscillator, adjusting the frequency of the mobile communication device if the total timing drift is determined to be greater than the predefined drift threshold (Banik, Col. 9, lines 27 - 31). However, the prior art either alone or in combination fails to teach estimating a long-term frequency error and a short-term frequency error for the mobile communication device, calculating a total timing drift for the mobile communication device using the long-term frequency error, determining whether a magnitude of the short-term frequency error is greater than a predefined error threshold, determining whether a magnitude of the total timing drift is greater than a predefined drift threshold if the magnitude of the short-term frequency error is determined to be not greater than the predefined error threshold.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Un C Cho whose telephone number is (703)305-8725. The examiner can normally be reached on M ~ F 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (703)308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Un C Cho UC 6/10/04
Examiner
Art Unit 2682


LEE NGUYEN
PRIMARY EXAMINER